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MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

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Dr. Lee, President, in the Chair.

J. Norman Lockyer, Esq., Wimbledon,
Rev. Edward Crofton, Heene, Sussex; and
J. J. Cole, Esq., 24 Essex Street, Strand,

were balloted for and duly elected Fellows of the Society.

M. Charles Delaunay, Paris, was balloted for and duly elected an Associate of the Society.

Collected Works of Gauss.

The Academy of Sciences of Göttingen announce the publication of the Collected Works of Gauss, including the manuscripts left at his decease. The Works will appear in seven volumes, quarto, under the titles,—

I. Disquisitiones Arithmeticæ.
II. Hohëre Arithmetik.
III. Analysis.
IV. Geometrie und Methode der kleinsten Quadrate.
V. Mathematische Physik.
VI. Astronomie.
VII. Theoria Motus Corporum Cœlestium;

the *Theoria Motus* to appear when the copyright interest therein has expired. The contents of the several volumes are given in No. 1348 of the *Astronomische Nachrichten.*

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The Works are to be published by subscription, which may be either for the whole or for the separate volumes; the subscription price to be hereafter fixed, but to be at about the rate of four thalers for a volume of from fifty to sixty sheets. Subscriptions may be addressed, post-free, "An das Secretariat der Königlichen Gesellschaft der Wissenschaften zu Göttingen." On completion, the Works will be sold in the ordinary course, at the rate of six or seven thalers per volume. The impression has begun, and will be carried on so that the first six volumes may at latest appear within five years.

On the Perturbations of Uranus and the Mass of Neptune.

By Truman Henry Safford, Assistant at the Observatory of Harvard College.

In the determination of the mean distance of the satellite of *Neptune*, and the consequent evaluation of that planet's mass, the faintness of the satellite has proved a great difficulty; so that different observers have differed systematically *inter se*, although each one is quite consistent with himself.

For instance, the mass of *Neptune*, from O. Struve's observations of the satellite, comes out $M = \frac{1}{14491} \pm 0{\cdot}02431\ M$, while Prof. G. P. Bond has deduced $M = \frac{1}{19400}$ from his father's and his own observations.

The perturbations of *Uranus*, by means of which *Neptune* was originally discovered, are, of course, adequate to determine its mass; and it would naturally be expected that the probable error of such a result would be much less than the difference between the numbers cited above.

Prof. Peirce, employing, I believe, the same observations as Leverrier did in his "Recherches sur les Mouvements de la Planète *Herschel* (dite *Uranus*)," has deduced (*Ast. Nach.*, No. 637) the result that, in general, a mass of *Neptune* nearly $\frac{1}{20000}$ will represent the motions of *Uranus* considerably nearer than a value more closely approaching to Struve's.

I was led to take up this question partly because it had been, some years ago, made the subject of a prize question by the Haarlem Society of Sciences (which, so far as I know, was not answered within the specified time), and partly because Struve's mass of *Neptune* seems to have been adopted by some high authorities; by Leverrier as, at least, a provisional value.

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